

Final

**Site-Specific Field Sampling Plan,
Site-Specific Safety and Health Plan, and Site-Specific
Unexploded Ordnance Safety Plan Attachments,
Former Range 42, Parcel 96Q; Range, Choccolocco Corridor,
Parcel 145Q-X; and Impact Area, Choccolocco Corridor,
Parcel 148Q-X
Fort McClellan, Calhoun County, Alabama**

**Task Order CK10
Contract No. DACA21-96-D-0018
IT Project No. 796887**

April 2002

Final

**Site-Specific Field Sampling Plan Attachment
Former Range 42, Parcel 96Q; Range, Choccolocco Corridor,
Parcel 145Q-X; and Impact Area, Choccolocco Corridor,
Parcel 148Q-X
Fort McClellan, Calhoun County, Alabama**

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**Task Order CK10
Contract No. DACA21-96-D-0018
IT Project No. 796887**

April 2002

Revision 0

Table of Contents

	<i>Page</i>
List of Tables	iii
List of Figures	iii
List of Acronyms	iv
Executive Summary	ES-1
1.0 Project Description.....	1-1
1.1 Introduction	1-1
1.2 Site Description	1-1
1.2.1 Archive Search Report Ranges.....	1-3
1.2.2 Aerial Photographs	1-3
1.3 Scope of Work.....	1-5
2.0 Summary of Existing Environmental Studies.....	2-1
3.0 Site-Specific Data Quality Objectives	3-1
3.1 Overview	3-1
3.2 Data Users and Available Data.....	3-1
3.3 Conceptual Site Exposure Model	3-2
3.4 Decision-Making Process, Data Uses, and Needs.....	3-3
3.4.1 Risk Evaluation	3-3
3.4.2 Data Types and Quality	3-4
3.4.3 Precision, Accuracy, and Completeness.....	3-4
4.0 Field Activities.....	4-1
4.1 UXO Survey Requirements and Utility Clearances	4-1
4.1.1 Surface UXO Survey	4-1
4.1.2 Downhole UXO Survey.....	4-1
4.1.3 Utility Clearances	4-1
4.2 Environmental Sampling.....	4-2
4.2.1 Surface Soil Sampling	4-2
4.2.1.1 Sample Locations and Rationale.....	4-2
4.2.1.2 Sample Collection.....	4-2
4.2.2 Subsurface Soil Sampling.....	4-2
4.2.2.1 Sample Locations and Rationale.....	4-3
4.2.2.2 Sample Collection.....	4-3

Table of Contents (Continued)

	Page
4.2.3 Permanent Residuum Monitoring Wells	4-4
4.2.4 Groundwater Sampling.....	4-5
4.2.4.1 Sample Locations and Rationale.....	4-5
4.2.4.2 Sample Collection.....	4-5
4.2.5 Sediment Sample Collection	4-5
4.2.5.1 Sample Location and Rationale	4-5
4.2.5.2 Sample Collection.....	4-5
4.2.6 Surface Water Sampling.....	4-6
4.2.6.1 Sample Location and Rationale	4-6
4.2.6.2 Sample Collection.....	4-6
4.3 Decontamination Requirements	4-6
4.4 Surveying of Sample Locations.....	4-6
4.5 Analytical Program.....	4-7
4.6 Sample Preservation, Packaging, and Shipping	4-8
4.7 Investigation-Derived Waste Management	4-8
4.8 Site-Specific Safety and Health.....	4-8
5.0 Project Schedule.....	5-1
6.0 References	6-1

Attachment 1 – List of Abbreviations and Acronyms

List of Tables

Number	Title	Follows Page
3-1	Summary of Data Quality Objectives	3-1
4-1	Sampling Locations and Rationales	4-2
4-2	Surface Soil and Subsurface Soil Sample Designations and QA/QC Sample Quantities	4-2
4-3	Groundwater Sample Designations and QA/QC Sample Quantities	4-5
4-4	Surface Water and Sediment Sample Designations and QA/QC Quantities	4-6
4-5	Analytical Sample Quantities	4-7

List of Figures

Number	Title	Follows Page
1-1	Site Location Map, Parcels 96Q, 145Q-X, and 148Q-X	1-1
1-2	Site Map, Parcels 96Q, 145Q-X, and 148Q-X	1-1
1-3	ASR Plate 6 (1950-1973) Range Location Map	1-2
1-4	1940 Aerial Photograph	1-3
1-5	1954 Aerial Photograph	1-3
1-6	1969 Aerial Photograph	1-3
1-7	1998 Aerial Photograph	1-4
3-1	Human Health Conceptual Site Exposure Model	3-3
4-1	Proposed Sample Location Map, Parcels 96Q, 145Q-X, and 148Q-X	4-2

List of Acronyms

See Attachment 1, List of Abbreviations and Acronyms

Executive Summary

In accordance with Contract Number DACA21-96-D-0018, Task Order CK10, IT Corporation (IT) will conduct site investigation activities at Former Range 42, Parcel 96Q; Range, Choccolocco Corridor, Parcel 145Q-X; and Impact Area, Choccolocco Corridor, Parcel 148Q-X, at Fort McClellan, Calhoun County, Alabama, to determine the presence or absence of potential site-specific chemicals at this site. The purpose of this site-specific field sampling plan is to provide technical guidance for sampling activities at Parcels 96Q, 145Q-X, and 148Q-X.

Parcels 96Q, 145Q-X, and 148Q-X are located in the Choccolocco Corridor near the northeastern boundary of the Main Post. Parcel 96Q, located on the eastern boundary of the Base along the Choccolocco Corridor, was part of the Range 40 complex. The site has been identified as the Squad Defense Range. The *U.S. Army Corps of Engineers Archives Search Report* (ASR) states the range was built during the Vietnam era and was a training range which probably did not include live fire. However, some FTMC personnel remember the area being used during World War II and the Korean War. It was abandoned by 1974. Choccolocco Corridor, where Parcels 96Q, 145Q-X, and 148Q-X are located, is currently managed by the Alabama Forestry Commission.

Parcel 145Q-X was identified as a range by the U.S. Environmental Protection Agency's Environmental Photographic Interpretation Center (EPIC) in the northwestern Choccolocco Corridor. The area is much larger than Parcel 96Q. The environmental baseline survey report states this range appears to be active in EPIC aerial photo composites dated 1949, 1954, and 1972 (1961 photo composite of Choccolocco Corridor was not included in the EPIC report). Large-caliber weapons are presumed to have been fired at Parcel 145Q-X, because a cratered impact area was identified within the range area. Parcel 148Q-X is defined as the impact area for Parcel 145Q-X.

IT personnel conducting a site visit in December 2001 concluded that this area had been used for small arms training. Several target bunkers for pop-up targets were identified in the central portion of the range. Electrical system remnants and old target structures were also noted in several places. An old electrical substation/building was identified near the northern boundary of Parcel 96Q. Offensive firing pits and the main firing line (east side of the range) were also identified. IT personnel also identified a swampy area, debris, a trench, and an area of depressions on the eastern side of Parcel 145Q-X.

Specifically, IT will collect 14 surface soil samples, 14 subsurface soil samples, 4 groundwater samples, 2 sediment samples, and 2 surface water samples. Potential contaminant sources at this range are primarily metals and explosives. Samples collected during the site investigation will be analyzed for metals and nitroaromatic/nitramine explosives. Also, sediment samples will be analyzed for total organic carbon and grain size. Approximately ten percent of each sample type will also be analyzed for volatile organic compounds, semivolatile organic compounds, chlorinated and organophosphorus pesticides, and chlorinated herbicides. Results from these analyses will be compared with site-specific screening levels, ecological screening values, and background values to determine if potential site-specific chemicals are present at the site at concentrations that pose an unacceptable risk to human health or the environment.

The presence of unexploded ordnance (UXO) is possible at these ranges because they were used for military training. Therefore, IT will conduct UXO avoidance activities as outlined in Appendix E of the installation-wide sampling and analysis plan (SAP) and the attached site-specific UXO safety plan prior to initiating field activities at this range. Surface sweeps and downhole surveys will be conducted to identify anomalies for the purpose of UXO avoidance.

This SFSP attachment to the SAP for Parcels 96Q, 145Q-X, and 148Q-X will be used in conjunction with the site-specific safety and health plan, the site-specific UXO safety plan, the installation-wide work plan, and the SAP. The SAP includes the installation-wide safety and health plan, monitoring well installation and maintenance plan, waste management plan, ordnance and explosives management plan, and quality assurance plan. Site-specific hazard analyses are included in the site-specific safety and health plan.

1.0 Project Description

1.1 Introduction

The U.S. Army is conducting studies of the environmental impact of suspected contaminants at Fort McClellan (FTMC) in Calhoun County, Alabama, under the management of the U.S. Army Corps of Engineers (USACE)-Mobile District. The USACE has contracted IT Corporation (IT) to provide environmental services for the site investigation (SI) at Former Range 42, Parcel 96Q; Range, Choccolocco Corridor, Parcel 145Q-X; and Impact Area, Choccolocco Corridor, Parcel 148Q-X, under Task Order CK10, Contract Number DACA21-96-D-0018.

This site-specific field sampling plan (SFSP) is an attachment to the installation-wide sampling and analysis plan (SAP) for FTMC (IT, 2002a) and has been prepared to provide technical guidance for sample collection and analysis at Parcels 96Q, 145Q-X, and 148Q-X. This SFSP will be used in conjunction with the site-specific safety and health plan (SSHP) and site-specific unexploded ordnance (UXO) safety plan developed for this area, the installation-wide work plan (WP) (IT, 2002b), and the SAP. The SAP includes the installation-wide safety and health plan, monitoring well installation and maintenance plan, waste management plan, ordnance and explosives management plan, and quality assurance plan (QAP). Site-specific hazard analyses are included in the SSHP.

1.2 Site Description

Parcels 96Q, 145Q-X, and 148Q-X are located in the Choccolocco Corridor near the northeastern boundary of the Main Post (Figure 1-1). Parcel 96Q, located on the eastern boundary of the Base along the Choccolocco Corridor, was part of the Range 40 complex (Figure 1-2). The *USACE Archives Search Report* (ASR) states the range was built during the Vietnam War era and was known as the Squad Defense Range (USACE, 1999a). However, some FTMC personnel remember the area being used during World War II and the Korean War. According to the ASR, the range was abandoned by 1974. Choccolocco Corridor is currently managed by the Alabama Forestry Commission. Recreation activities that may occur in the area are hiking, biking, horseback riding, and hunting.

The environmental baseline survey (EBS) (Environmental Science and Engineering, Inc. [ESE], 1998) concluded the following about Former Range 42, Parcel 96Q:

- Former Range 42, located in Choccolocco Corridor, is 23.8 acres (the ASR states the range was 6 acres) and was probably used during the 1960s and 1970s.

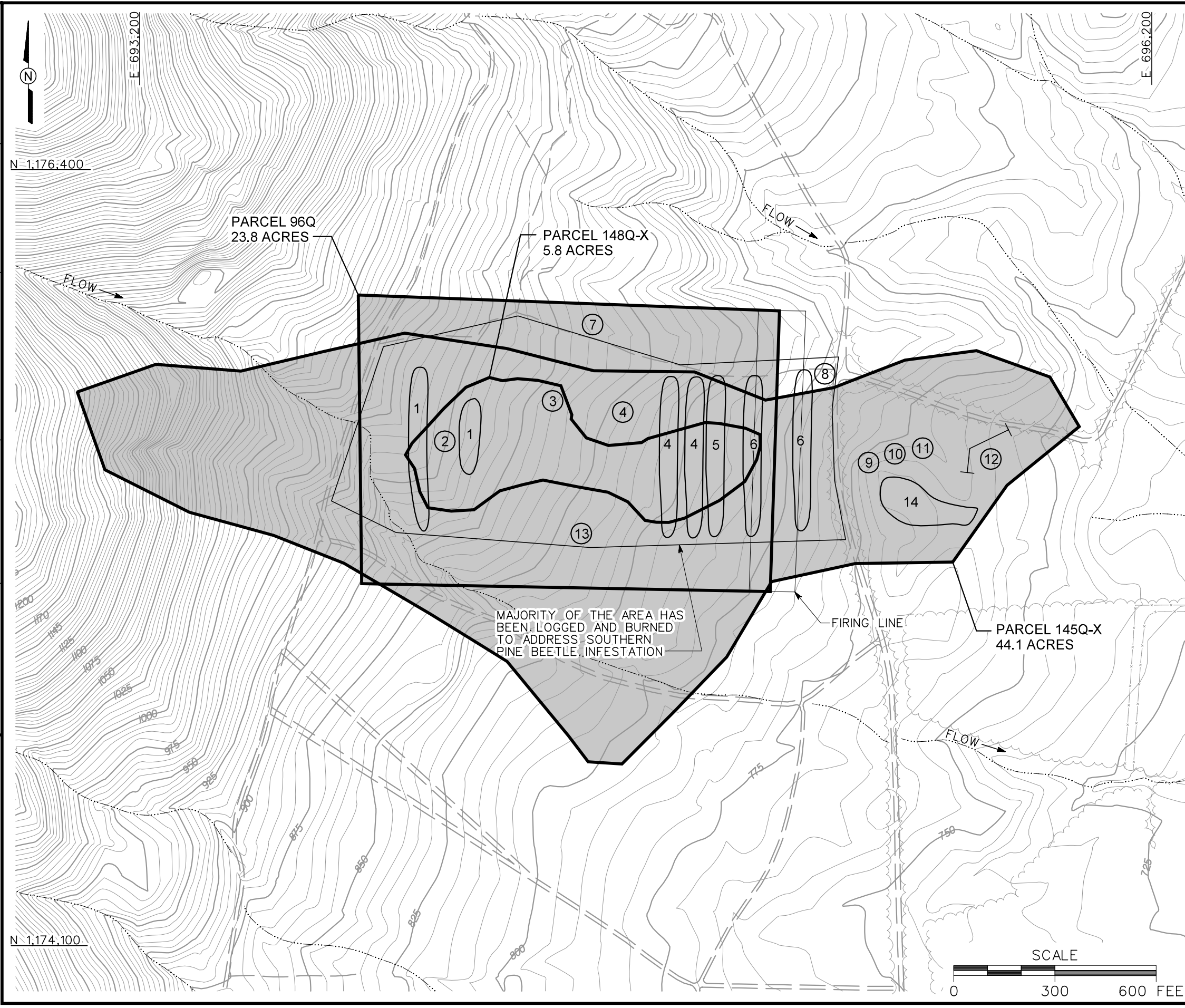


LEGEND

- UNIMPROVED ROADS AND PARKING
- PAVED ROADS AND PARKING
- PARCEL BOUNDARY
- SURFACE DRAINAGE / CREEK
- TRENCH
- BERM

FIGURE 1-1
SITE LOCATION MAP
PARCELS 96Q, 145Q-X, AND 148Q-X

U. S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT
FORT McCLELLAN
CALHOUN COUNTY, ALABAMA
Contract No. DACA21-96-D-0018



LEGEND

- UNIMPROVED ROADS AND PARKING
- PAVED ROADS AND PARKING
- BUILDING
- TOPOGRAPHIC CONTOURS (CONTOUR INTERVAL - 5 FOOT)
- TREES / TREELINE
- PARCEL BOUNDARY
- FIRING LINE
- SURFACE DRAINAGE / CREEK
- FENCE
- TRENCH

TRAINING AIDS/PHYSICAL FEATURES OBSERVED

- ① POP-UP TARGET AREAS WITH REMNANT EQUIPMENT
- ② OFFENSIVE FIRING POSITION
- ③ PIT
- ④ POP-UP TARGET AREAS/FIRING POINTS
- ⑤ POP-UP TARGET AREAS/FIRING POINTS WITH ELECTRICAL SERVICE REMNANTS
- ⑥ MAIN FIRING LINE WITH SHOOTING STATION REMNANTS.
- ⑦ ELECTRICAL BUILDING REMNANTS
- ⑧ POSSIBLE OBSERVATION TOWER DESTROYED BY FIRE
- ⑨ FLARES, EXPENDED
- ⑩ TWO 55-GALLON DRUMS
- ⑪ EMPTY CYLINDER
- ⑫ AREA OF SHALLOW DEPRESSION
- ⑬ LIGHT POLE, MOUNDS AND DEPRESSIONS
- ⑭ SWAMPY AREA

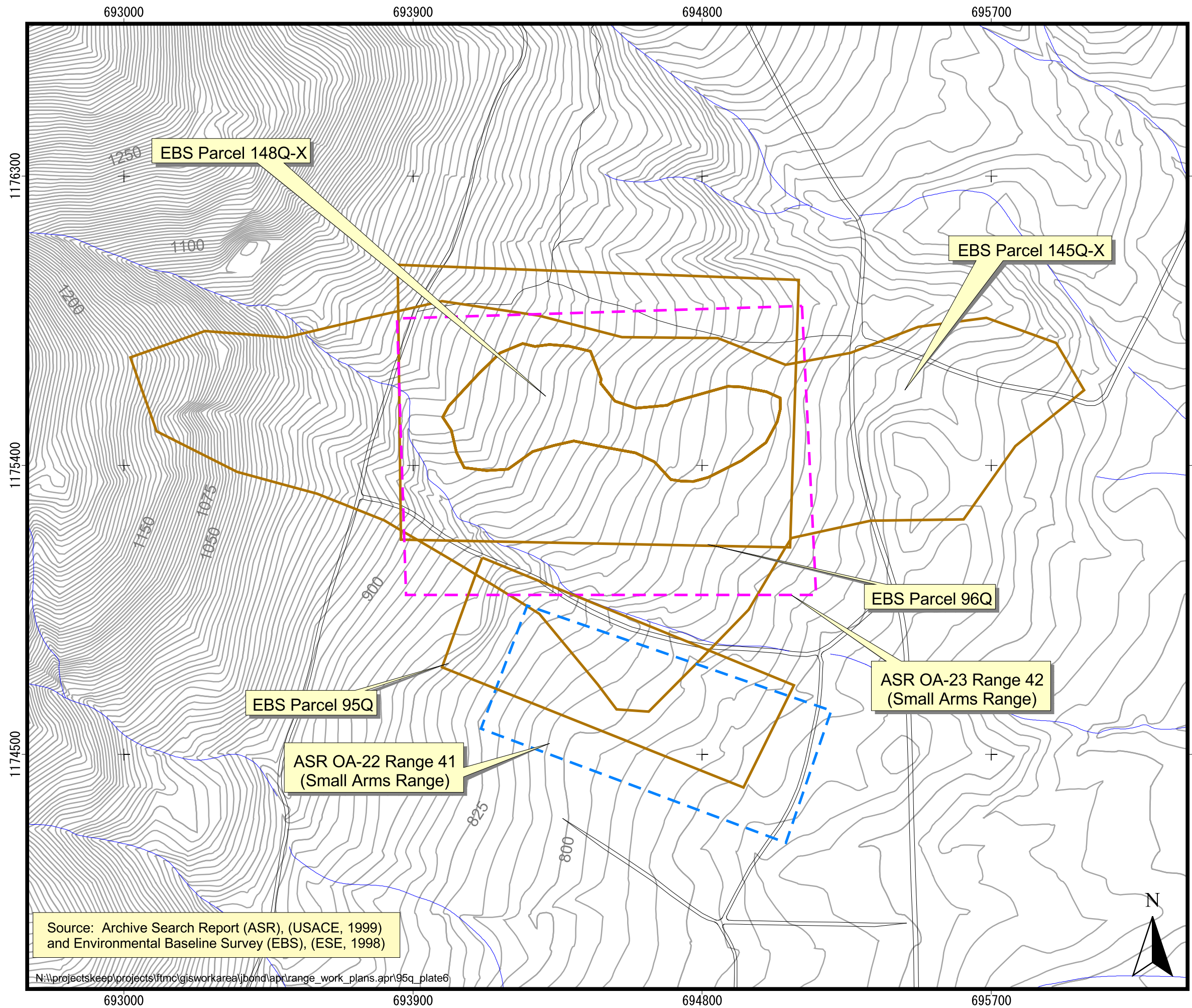
- Direction of fire was toward the west.
- Choccolocco Corridor was leased from the State of Alabama. The Choccolocco Corridor lease was terminated in 1998.

The EBS concluded the following about Range, Choccolocco Corridor, Parcel 145Q-X:

- Parcel 145Q-X was identified by the Environmental Photographic Interpretation Center (EPIC) in northwestern Choccolocco Corridor (U.S. Environmental Protection Agency [EPA], 1990). This range appears to be active in EPIC aerial photo composites dated 1949, 1954, and 1972 (1961 photo composite of Choccolocco Corridor was not included in the EPIC report).
- Parcel 145Q-X is 44.1 acres. The southern boundary of Parcel 145Q-X overlaps Former Range 41, Parcel 95Q (Figure 1-3). Most of the common area of Parcels 95Q and 145Q will not be investigated as part of this SI, but will be included in a separate investigation of Parcels 95Q and 131Q-X.
- Large-caliber weapons are presumed to have been fired at Parcel 145Q-X because cratered impact areas were identified within the range areas.
- Parcel 145Q-X, identified by EPIC, is located in the vicinity of the Range 40 complex which was previously identified from maps. It is possible that the mapped locations were planned locations which were subsequently constructed in a different orientation.

The EBS concluded that Impact Area, Choccolocco Corridor, Parcel 148Q-X, is an impact area that occupies an area of 5.8 acres within Parcels 96Q and 145Q-X.

IT personnel conducting a site visit in December 2001 concluded that this area had been used for military training. Several target bunkers for pop-up targets were identified in the central portion of the range. Electrical system remnants and old target structures were also noted in several places. An old electrical substation/building was identified near the northern boundary of Parcel 96Q. Offensive firing pits and the main firing line (east side of the range) were also identified. The main firing line was built up approximately 10 feet higher than the surrounding area, and remnants were seen of 2-foot wide by 3-foot long by 6-foot deep shooting boxes built behind a bermed area. There was not any typical small arms range debris (e.g., casings, bullets) identified in the Parcel 96Q area. Some expended flares, empty drums, and empty cylinders were found next to a swampy area located in the eastern portion of Parcel 145Q-X, outside of the area of Parcel 96Q. A trench and area of shallow depressions were also found in this area (Figure 1-2).



Source: Archive Search Report (ASR), (USACE, 1999)
and Environmental Baseline Survey (EBS), (ESE, 1998)

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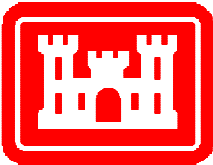
Figure 1-3

**ASR Plate 6 (1950 to 1973)
Range Location Map**
Parcels 96Q, 145Q-X,
and 148Q-X
Fort McClellan, Alabama

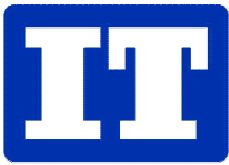
Legend

- EBS Parcel
- ASR OA-23 Range 42 (Small Arms Range)
- ASR OA-22 Range 41 (Small Arms Range)
- Roads
- Streams
- Topographic Contours 5-foot Interval

300 0 300 Feet
NAD83 State Plane Coordinates



U.S. Army Corps
of Engineers
Mobile District



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1.2.1 Archive Search Report Ranges

Range Plates 6 and 10 from the *Archives Search Report, Maps, Fort McClellan, Anniston, Alabama* (USACE, 1999a) show a range in the area of Former Range 42, Parcel 96Q, and indicate the area was a rifle range (small arms) during the time period 1950 to 1973 (Figure 1-3). The ASR states the range was known as the Squad Defense Range and was built in the Vietnam War era. It was reported abandoned by 1974. A second ASR range (Range 41, OA-22) is shown overlapping the southern portion of Parcel 145Q-X (Figure 1-3). This ASR range approximately matches the EBS Former Range 41, Parcel 95Q boundaries. Most of the common area of Parcels 95Q and 145Q will not be investigated as part of this SI, but will be included in a separate investigation of Parcels 95Q and 131Q-X.

The aerial photographs in the ASR were reviewed to reveal any land use activity in the area of investigation. Photo Plate 4 (1954) and Photo Plate 5 (1961) from the ASR show gravel roads in the area but do not indicate a use. Photo Plate 6 (1969) clearly shows a developed and impacted area and shows an outline to the range approximately equal to the Parcel 96Q boundary. The most developed features appear in the 1969 aerial photo and include a well-defined gravel road and large cleared area.

1.2.2 Aerial Photographs

Available aerial photographs from FTMC were reviewed to reveal any land-use activity at Parcels 96Q, 145Q-X, and 148Q-X. The following paragraphs summarize the review of aerial photographs for the years 1937, 1940, 1954, 1969, 1976, 1982, 1994, and 1998.

1937 and 1940. The 1937 and 1940 (Figure 1-4) aerial photographs show the area is undeveloped and forested.

1954. The 1954 aerial photograph shows the development of dirt/gravel roads, and some of the forest has been cleared (Figure 1-5). The area for these ranges do not appear cleared in this photo, indicating light use, if any.

1969. The 1969 aerial photograph shows the area under heavy use, with well-used roads (Figure 1-6). The area defined by Parcel 96Q does not contain any trees. The impact area defined by Parcel 148Q-X shows probable evidence of berms and pits. The outer areas defined by Parcel 145Q-X (outside of those areas defined by Parcel 96Q) are forested and show little use. No

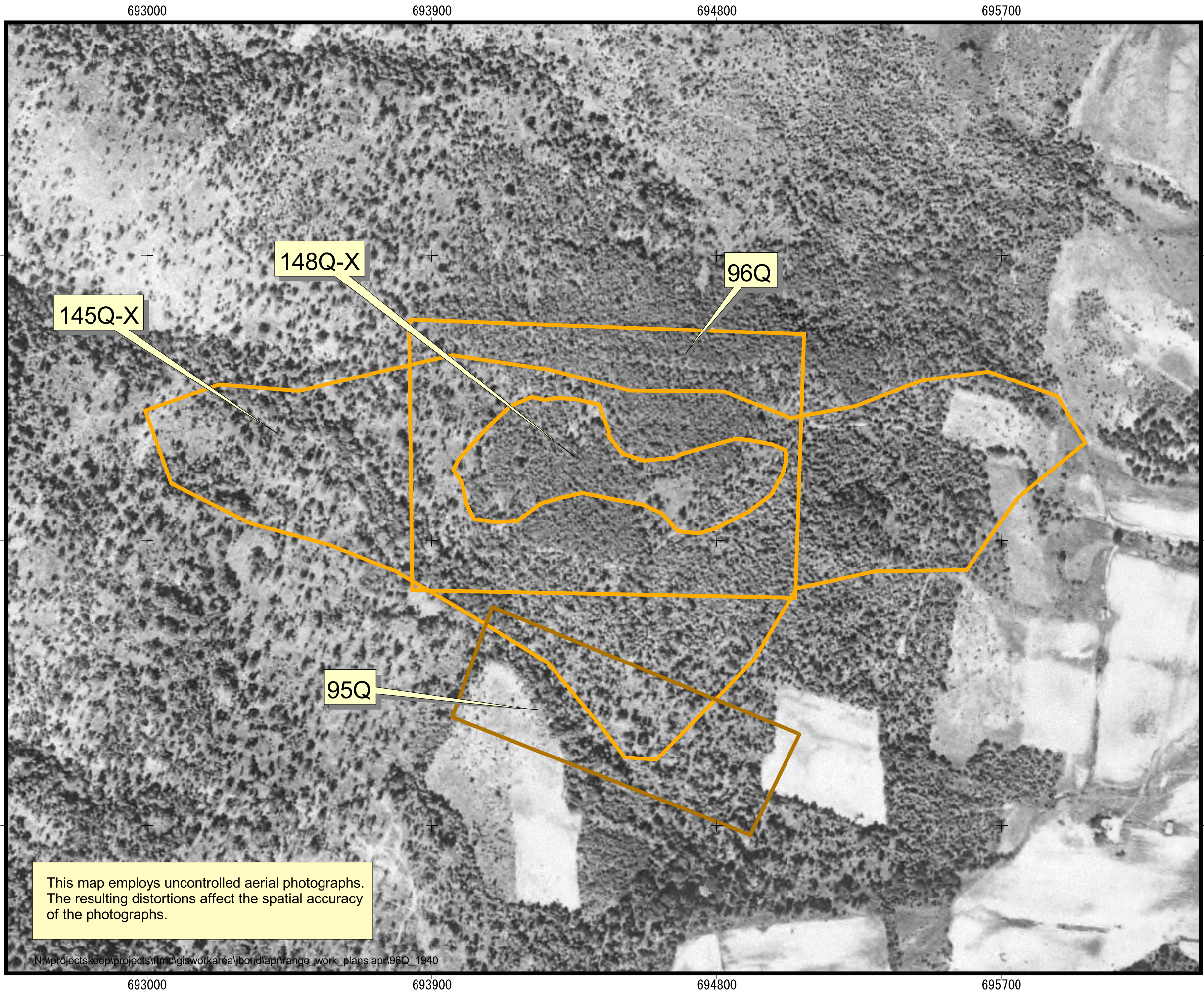


Figure 1-4

1940 Aerial Photograph
Parcels 96Q, 145Q-X,
and 148Q-X
Fort McClellan, AL

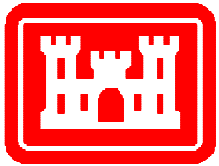
Legend

Area of Investigation/
Parcel Boundary

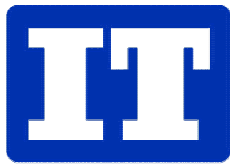
Parcel Boundary

0300 Feet

NAD83 State Plane Coordinates



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Mobile District



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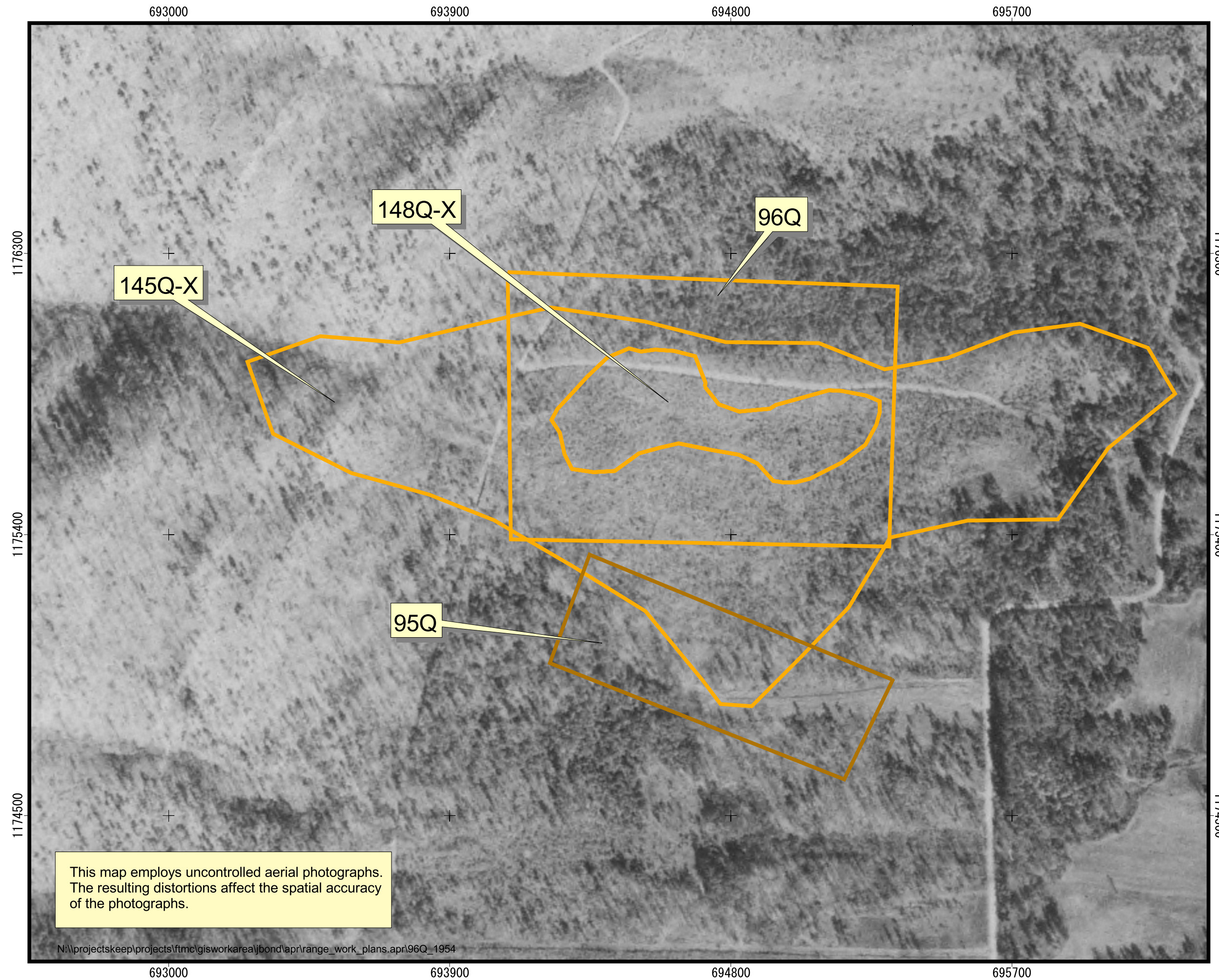



Figure 1-5

1954 Aerial Photograph

Parcels 96Q, 145Q-X,
and 148Q-X
Fort McClellan, AL

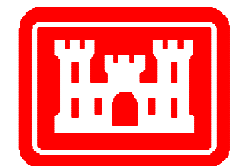
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 Area of Investigation/
Parcel Boundary

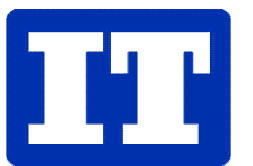
 Parcel Boundary

0 300 Feet

NAD83 State Plane Coordinates



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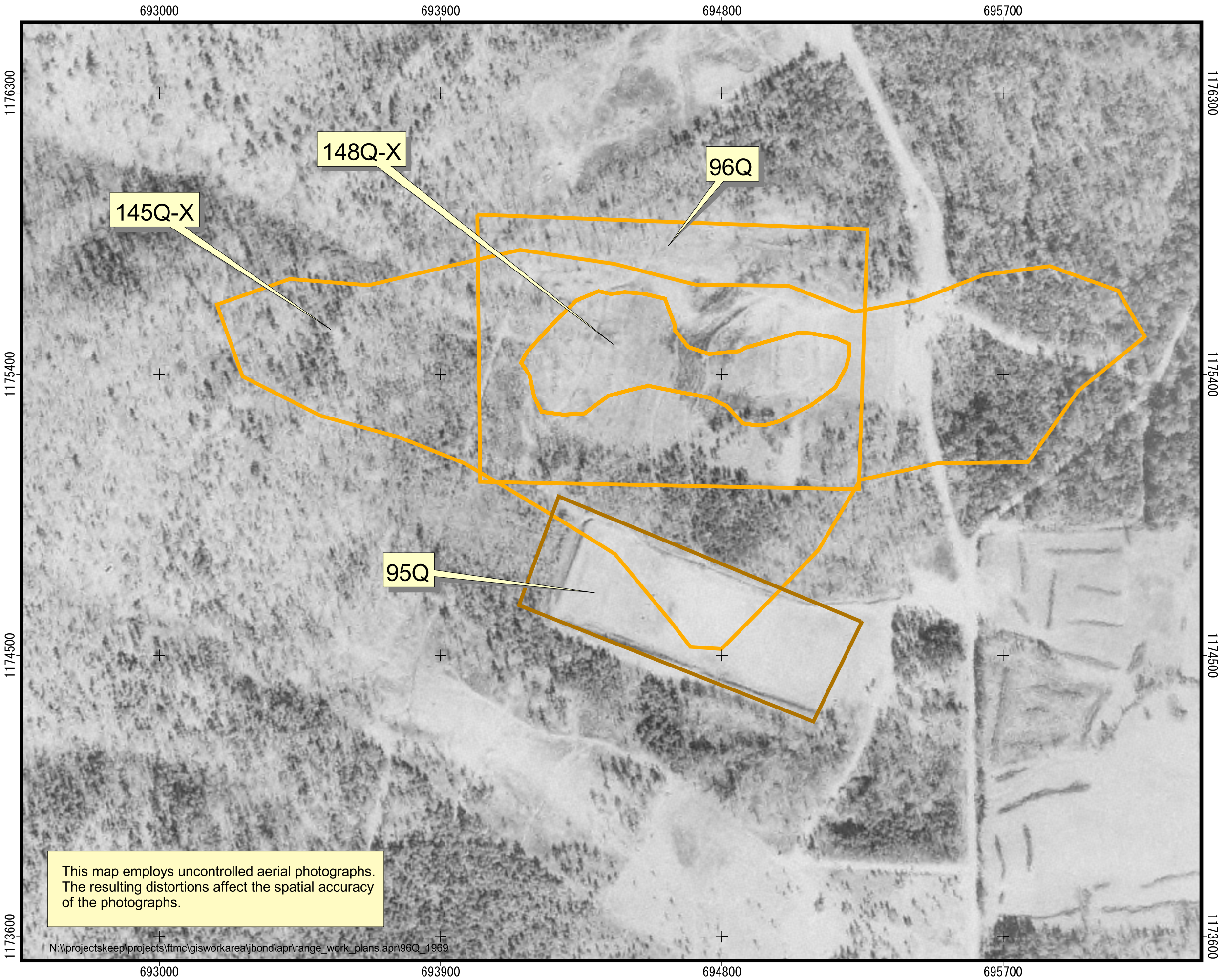




Figure 1-6

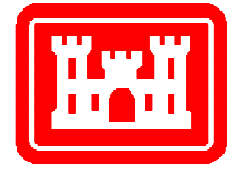
1969 Aerial Photograph
Parcels 96Q, 145Q-X,
and 148Q-X
Fort McClellan, AL

Legend

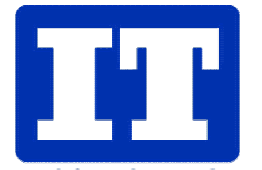
-  Area of Investigation/
Parcel Boundary
-  Parcel Boundary

0 300 Feet

NAD83 State Plane Coordinates



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evidence is visible in this photograph to suggest the size of Parcel 145Q-X; the range area seems well defined by the boundary of Parcel 96Q.

1976, 1982, and 1994. These three photographs show an increase in ground vegetation and tree cover over time. In 1976 the site looks mostly overgrown with grass and brush. Trees and heavy brush have covered the site by 1982. The gravel roads and bare areas shown in earlier photographs are becoming less visible due to overgrowth.

1998. The 1998 photograph shows the same trend as the previous three photographs, increasing tree and brush cover (Figure 1-7). The gravel road is less visible, and the barren areas seen in the 1969 photograph are now completely overgrown with heavy tree cover.

The elevation of the site ranges from approximately 750 feet above mean sea level (amsl) at the eastern end of the site to approximately 1,150 feet amsl at the western end of the site. Surface runoff drains toward the east/southeast across the site. The main part of the range is located on a relatively shallow slope of approximately 10 percent grade, while the western end is very steep. The local shallow groundwater flow direction is probably controlled by topography; therefore, groundwater flow in the residuum is likely to the east/southeast.

Soils at Parcels 96Q, 145Q-X, and 148Q-X fall mainly into four soil series, the Stony Rough Land sandstone, the Anniston and Allen gravelly loam, the Anniston and Allen stony loam, and the Jefferson gravelly fine sandy loam (U.S. Department of Agriculture [USDA], 1961).

The Anniston and Allen series of soils consists of strongly acid, deep, well-drained soils that have developed in old local alluvium. The parent material washed from adjacent, higher-lying Linker, Muskingum, Enders, and Montevallo soils, which developed from weathered sandstone, shale, and quartzite. These sites contain sandstone and quartzite gravel and cobbles, which measure as much as 8 inches in diameter, on the surface and throughout the soil. For this soil series, the depth to bedrock is typically from 2 feet to greater than 10 feet, with depth to water greater than 20 feet (USDA, 1961). The stony loam series differs from the gravelly loams in having less erosion, a thicker surface layer, and more stones.

The Jefferson series consists of well-drained, strongly acid soils that occur in small areas on fans and on foot slopes in the Choccolocco Mountains. These soils have developed from old local alluvium that washed or sloughed from ridges of sandstone, shale, and quartzite. The surface soil

693000

693900

694800

695700

1176300

1175400

1174500

1176300

1175400

1174500

145Q-X

148Q-X

96Q

95Q

This map employs uncontrolled aerial photographs.
The resulting distortions affect the spatial accuracy
of the photographs.

N:\projects\proj15\proj15\work\area\bond\ap\ranne_work_plans\ap\96Q_1005

693000

693900

694800

695700

Figure 1-7

1998 Aerial Photograph
Parcels 96Q, 145Q-X,
and 148Q-X
Fort McClellan, AL

Legend

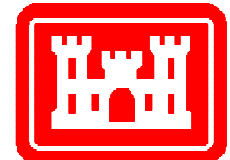
Area of Investigation/
Parcel Boundary

Parcel Boundary

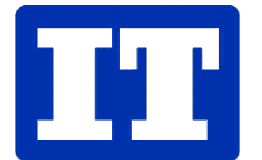
0300

Feet

NAD83 State Plane Coordinates



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is dark grayish-brown sandy loam, and the subsoil is yellowish-brown, light fine sandy clay. Fragments of sandstone and quartzite are found throughout the profile (USDA, 1961).

The Stony Rough Land sandstone consists of rough, mountainous areas with many outcrops of sandstone and quartzite bedrock, loose rock fragments, and scattered patches of sandy soil material. Slopes are generally more than 25 percent. The soil material is generally shallow over bedrock. Runoff is high, infiltration is slow, and the capacity for available moisture is low (USDA, 1961).

The eastern and central portions of Parcels 96Q, 145Q-X, and 148Q-X consist of the Anniston and Allen gravelly loams, 2 to 6 percent slopes, eroded (AcB2) and 6 to 10 percent slopes, eroded (AcC2) (USDA, 1961). The eastern end of the range (near the main firing line) consists of Anniston and Allen stony loams, 0 to 10 percent slopes, eroded (AdC). These series consist of friable soils that have developed in old alluvium on foot slopes and fans along the bases of the mountains. Some severely eroded areas may be common on the surface for this soil type, as well as a few shallow gullies. Generally, the depth to bedrock ranges from 2 feet to greater than 10 feet. The typical soil description is 2 to 10 feet of well-drained stony loam to clay loam over stratified local alluvium, limestone, or shale bedrock. The depth to the water table is likely greater than 20 feet. The stony loam series differs from the gravelly loams in having less erosion, a thicker surface layer, and more stones.

The southeastern corner of Parcel 96Q and Parcel 145Q-X consists of the Jefferson gravelly fine sandy loam, 2 to 6 percent slopes, eroded (JeB2) and 6 to 10 percent slopes, eroded (JeC2) (USDA, 1961). These soils are located along the intermittent stream/drainage gully and its fan near the southeastern boundary of Parcel 96Q and southern portion of Parcel 145Q-X.

The western end of Parcel 96Q consists of Anniston and Allen stony loams, 10 to 25 percent slopes, eroded (AdE). These soils have strong slopes and numerous stones. This small area is between the steep mountains to the west and the more gentle slopes to the east. The western end of Parcel 145Q-X that extends past the boundary of Parcel 96Q consists of the Rough Stony Land sandstone (Ss).

1.3 Scope of Work

The scope of work for SI field activities at Parcels 96Q, 145Q-X, and 148Q-X as specified by the statement of work (USACE, 1999b) includes the following tasks:

- Develop the SFSP attachment.
- Develop the SSHP attachment.
- Develop the UXO safety plan attachment.
- Conduct a surface and near-surface UXO survey over all areas to be included in the sampling effort.
- Provide downhole UXO support for all intrusive drilling to determine buried downhole hazards.
- Collect 14 surface soil samples, 14 subsurface soil samples 4 groundwater samples, 2 sediment samples, and 2 surface water samples, to determine whether potential site-specific chemicals (PSSC) are present at the site and to provide data useful for supporting any future corrective measures and closure activities.
- Analyze samples for the parameters listed in Chapter 4.5.

The possibility for UXO exists at this site because the area was used for military training. Therefore, UXO surface sweeps and downhole surveys of soil borings will be required to support field activities at this site. The surface sweeps and downhole surveys will be conducted to identify anomalies for the purposes of UXO avoidance. The site-specific UXO safety plan attachment addresses the manner in which the avoidance will be conducted.

Following the field activities and sample analyses, an SI summary report will be prepared to evaluate the absence or presence of PSSCs at this site and to recommend further actions, if appropriate. The SI summary report will be prepared in accordance with current guidelines of the EPA, Region IV, and the Alabama Department of Environmental Management (ADEM).